MAGISNAT

The science behind the natural molecules and the Mediterranean diet

DNA

WELLNESS TEST

Analyzes **120+ genetic variations** related to key biochemical pathways.

It serves as **the basis for personalized dietary**, identifying necessary fortifications.

- *Vitamins metabolism.*
- *Minerals metabolism.*
- *Carbohydrates metabolism.*
- *Lipids metabolism.*
- *Food preferences*
- *Detoxification, antioxidation and longevity.*
- *Physical activity.*
- *Sleep and Mood Pain Perception.*
- *Chiropractic treatment.*

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Atlanta Tech Park
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PEACHTREE CORNERS, GA 30092

Subject Information

First Name:	
Last Name:	
Date of Birth:	
ZIP Code:	
City:	
Mailing Address:	
State:	
Telephone:	
Email:	

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Dear

Thank you for choosing to take the MAGISNAT DNA Wellness test.

Below, you will find the report that we have prepared for you. We trust that the insights on your genetic makeup provided in there will be a powerful tool to better know yourself and improve your overall well-being, making the most out of your individuality.

We encourage you to take the time to review this report thoroughly and discuss the findings with your healthcare provider.

Thank you for entrusting us with your genetic information, and we hope that this report will be valuable in guiding your journey towards a healthier and happier life.

Sincerely,

Magisnat Omics LLC Team.

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Scientific Glossary

When discussing genetics, it's often necessary to use many technical terms, and there's no way to avoid it if we want to maintain accuracy in explanations. That's why we have compiled a scientific glossary - to enable everyone to understand without getting overwhelmed.

Anyway, it is important to emphasize that our scientific glossary does not aim to be exhaustive and is not intended to replace the advice provided by your healthcare provider. Professional medical support is essential for a proper interpretation of genetic data and for developing a personalized health and wellness plan.

- **Allele:** An allele is one of the different forms of a specific gene. The differences among alleles arise from small changes in the DNA sequence and can lead to changes in the characteristic controlled by the gene itself.
- **Chromosome:** The chromosome is the structure in which the DNA is organized in the nucleus of the cells. Humans have 23 pairs of chromosomes, with one copy coming from the mother and one copy from the father.
- **Dietary supplement:** A dietary supplement is a product that contains one or more dietary ingredients, such as vitamins, minerals, herbs, amino acids, enzymes, or other substances, intended to supplement the diet. These supplements are available in various forms, including pills, capsules, tablets, powders, or liquids.
- **DNA:** DNA stands for Deoxyribonucleic Acid. It is the macromolecule containing the information to build the organism. It is made up of 4 different nucleotides (Adenine, Cytosine, Guanine and Thymine). The human DNA have 3 billion nucleotide base pairs.
- **Gene:** A gene is a segment of a chromosome that occupies a given locus on it and codes for a protein, each one with a specific function: some build the structure of our cells, some respond to signaling molecules, some catalyze reactions (these are called enzymes), and so on.
- **Genetic Variant:** A genetic variant is a change or alteration in the DNA sequence of a gene. The main genetic variant types include base substitutions, deletions, or insertions.
- **Genomics:** Genomics is a field of biology that focuses on the study of an organism's entire genome, which is the complete set of its genetic material. It involves the comprehensive analysis of genes, their functions, interactions, and variations within and between populations.
- **Genotype:** The genotype is the genetic makeup of an organism, then the combination of alleles presents in an individual's DNA at a particular locus on a chromosome. The genotype represents the specific genetic information that an organism inherits from its parents.
- **Heterozygosity:** Heterozygosity refers to having two different alleles at a specific genetic locus. If an individual has one copy of the "A" allele and one copy of the "B" allele for a certain gene (AB genotype), they are said to be heterozygous for that gene.

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- **Homozygosity:** Homozygosity refers to having two identical alleles at a specific genetic locus. If an individual has two copies of the "A" allele for a certain gene (AA genotype), they are said to be homozygous for that gene.
- **Macronutrient:** Macronutrients are essential nutrients that are required by the body in large quantities to maintain proper functioning, growth, and overall health. These nutrients provide the necessary energy and building blocks needed for various physiological processes. The three primary macronutrients are: carbohydrates, lipids (fat), and proteins.
- **Micronutrient:** Micronutrients are essential nutrients required by the body in smaller quantities but are equally important for maintaining overall health and supporting various physiological functions. Micronutrients include two main groups: vitamins and minerals.
- **Nutritional deficiency:** Nutritional deficiency, also known as malnutrition, refers to a condition in which the body does not receive enough macronutrients or micronutrients, which are needed to support proper growth, development, and overall wellness.
- **Phenotype:** The phenotype is any observable trait arising from a complex interplay between a given genotype and environmental factors. Examples of phenotypes are height, eye color and blood type.
- **rsID number:** rsID numbers are identifiers used by researchers to name different SNPs.
- **SNPs (Single Nucleotide Polymorphism):** A SNP, or single nucleotide polymorphism, is a genetic variant in one of the nucleotide bases composing DNA and found in more than 1% of the population.

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How to read this report

The report is divided in two parts:

- Subject Data Analysis
- Genetic Data Analysis

In the **Subject Data Analysis** part, the information gathered in the optional questionnaire is analyzed from the perspective of the guidelines you provided by the most prominent US and global health organizations and/or on the scientific literature. The answers you gave in the questionnaire are reported with a color code with respect to the guidelines: in green when you align with them, in orange when you need some adjustment, in red when you are completely missing them. Moreover, you will find a brief description of the guidelines and relative references. In any case, remember that guidelines are intended for the general population and represent only an indication. Before taking any action, it is advisable to consult your healthcare provider.

In the **Genetic Data Analysis** part, you will find insights about the characteristic under analysis, followed by a table listing the genes and polymorphisms considered for that characteristic. After this introductive session, you will find your results in tabular form. Here, the color code uses the same rational as above and with respect to the scientific literature: in green we report polymorphisms with a beneficial impact (e.g., increased enzyme function), in orange when the impact is slightly negative (e.g., reduced enzyme function), in red when the impact is more negative (e.g., enzyme loss of function). Finally, you will find the section recommendations, in which the outcome of the polymorphism is treated in more details. In any case, remember that this information is intended to be discussed with your healthcare provider.

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Questionnaire Analysis Results

Subject information and Body Measurements

- **Your BMI is 20.57**.

  BMI (body mass index) is a widely used standardized tool to quickly assess weight categories relative to a person's height. It's useful in clinical settings because it provides a rapid estimate of total body fat. Despite its utility, BMI does not distinguish between fat mass and lean mass, nor does it consider body fat distribution.

  Based on this, you are classified as **normal weight**.

  - References: Weir CB, Jan A. BMI Classification Percentile And Cut Off Points. 2023 Jun 26.

  - References: Obesity: preventing and managing the global epidemic. Report of a WHO consultation.

- Your waist circumference is **203.2 cm** (80" inch).

  Waist circumference is clinically used to provide a direct and quick measure of abdominal fat. It is considered an important indicator for suggesting potential lifestyle changes to improve overall well-being.

  Based on the measures you provided, your waist circumference is **likely high**. Your healthcare provider might consider this measurement along with your BMI and find this information useful for suggesting a personalized diet and/or a personalized training plan.

  - References: Ross R. et al.,Waist circumference as a vital sign in clinical practice: a Consensus Statement from the IAS and ICCR Working Group on Visceral Obesity. Nat Rev Endocrinol. 2020 Mar;16(3):177-189.

- Your waist-to-hip ratio is **1.33**.

  The waist-to-hip ratio (WHR) is used in clinical settings to quickly assess body fat distribution and identify abdominal fat. Compared to other measures, WHR provides a more specific indication of presence of visceral fat accumulation.

  Based on the measures you provided, your waist-to-hip ratio is **likely high**. Your healthcare provider might consider this measurement along with your BMI and find this information useful for suggesting a personalized diet and/or a personalized training plan.

  - References: World Health Organization. (2011). Nutrition and Food Safety (NFS). Geneva: World Health Organization.

- **Your neck circumference is 127.0 cm** (50" inch).

  Neck circumference is clinically used to provide a direct and quick measure of neck fat. It is considered an important indicator for suggesting potential lifestyle changes to improve overall well-being.

  Based on the measures you provided, your neck circumference is **likely high**. Your healthcare provider might consider this measurement along with your BMI and find this information useful for suggesting a personalized diet and/or a personalized training plan.

- References: Preis S.R. et al., Neck circumference as a novel measure of cardiometabolic risk: the Framingham Heart study. J Clin Endocrinol Metab. 2010 Aug;95(8):3701-10.

Subject lifestyle

- Based on the information you provided, **you smoke**.

- According to the Dietary Guidelines for Americans 2020-2025, moderate alcohol consumption is defined as up to 2 drinks or less per day for adult men and up to 1 drink or less per day for adult women. Alternatively, it is defined as consuming 15 drinks or more per week for adult men and 8 or more drinks per week for adult women.

  By consuming **8** standard drinks per week, **you are considered to be within** the threshold for **"moderate"** consumption according to the guidelines.

  - References: Drinking Levels Defined, National Institute on Alcohol Abuse and Alcoholism (NIAAA).

- Optimal sleep duration is crucial for overall well-being. According to the guidelines, adults should sleep 7-8 hours per night.

  You are sleeping **8.0 hours**, **You are meeting the guidelines**.

  Based on the information you provided, **your number of wake-ups is 1**. Your sleep **appears to be continuous**.

  Based on the information you provided, you **are experiencing tiredness often**.

  Based on the information you provided, you **are maintaining a regular sleep pattern**.

  - References: National Institutes of Health and Human Services, Your Guide To Healthy Sleep, August 2011, NIH Pubblication No.11-5271.

- Healthy individuals need about 13 (3.0 L) cups of water daily for men and 9 (2.2 L) cups for women, including all fluids and foods. Staying hydrated is crucial for overall wellbeing, especially during physical activity and hot weather.

  Based on the information you provided, you are drinking daily **2.0 L** of water. **You are not meeting the guidelines** for adult male.

  - References: Water. The Nutrition Source, Harvard T.H. Chan School of Public Health

Eating habits

- Caloric intake should align with individual energy needs to support optimal well-being. Individuals should strive to meet recommended guidelines for both caloric intake and physical activity to optimize well-being.

  Based on the estimates calculated by us, considering the information you provided in the questionnaire, **your daily caloric intake is 2495 kcal**, which fall between the recommended threshold for adult males.

  - References: Osilla EV, Safadi AO, Sharma S. Calories. 2022 Sep 12.

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- Food allergies can significantly impact well-being, as they occur when the body's immune system reacts to certain proteins in food. It is essential to be cautious with dietary choices and food consumption to avoid allergic reactions.

  Based on the information you provided, **you have allergies to: eggs, wheat**

  - References: Food and Drug Administration (2019). Food Allergies.

Physical Activity

- According to the World Health Organization (WHO), regular physical activity is crucial for maintaining overall wellbeing.

  Based on the estimates calculated by us, your activity level is **High**.

  - References: World Health Organization. Physical Activity. WHO, 2020.

- Aerobic activities play a key role in well-being. According to the guidelines from the World Health Organization (WHO), adults aged 18-64 should aim for at least 150 minutes per week of moderate-intensity aerobic activity or 75 minutes per week of vigorous-intensity aerobic activity, preferably spread throughout the week.

  Based on the information you provided, your total moderate aerobic activities is: 240 minutes, and your total high aerobic activities is: 240 minutes. **You are meeting** the guidelines of Aerobic Activities.

  - References: World Health Organization. (2010). Global Recommendations on Physical Activity for Health. Geneva: World Health Organization.

- Resistance training is also crucial for overall health and fitness. It helps increase muscle mass, strength, and power, and enhances bone health. According to the guidelines from the World Health Organization (WHO), adults aged 18-64 should perform resistance training on a minimum of three non-consecutive days each week to improve health condition..

  Based on the information you provided, your Resistance training sessions per week is: 4. **You are meeting** the guidelines of Resistence Training.

  - References: World Health Organization. (2010). Global Recommendations on Physical Activity for Health. Geneva: World Health Organization.

Diet and Physical Activity Integration

- Maintaining a balanced caloric intake and engaging in regular physical activity are essential components of a healthy lifestyle. Caloric intake should align with individual energy needs to support optimal well-being. Individuals should strive to meet recommended guidelines for both caloric intake and physical activity to optimize well-being.

  Based on the estimates calculated by us, considering the information you provided in the questionnaire, your daily caloric intake is 2495 kcal which falls between the recommended threshold for adult males. Your activity level is High. We recommend discussing with your healthcare provider for a meal plan and/or a physical activity plan tailored to your needs.

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- References: World Health Organization. (2010). Global Recommendations on Physical Activity for Health. Geneva: World Health Organization.

- References: Osilla EV, Safadi AO, Sharma S. Calories. 2022 Sep 12.

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Vitamin A

Vitamin A is a fat-soluble vitamin essential for maintaining healthy vision, supporting the immune system, and promoting proper growth and development in the body. Its primary functions include playing a crucial role in maintaining healthy skin, supporting reproductive health, and contributing to the formation and maintenance of various tissues and organs.

Vitamin A is a general term that covers several different forms of the vitamin. Animal food sources mainly provide a preformed vitamin A (ready to use), called retinol. Instead, plants contain carotenes that are precursors to vitamin A. The most common form, beta-carotene, shows up in abundance in carrots and other orange-colored foods. An enzyme in the intestine breaks down beta-carotene, also forming retinol.

The Recommended Daily Intake of vitamin A for adults is 900 mcg RAE (3,000 IU) per day, while for pregnant and lactating women, it is 1,300 mcg RAE (4,333 IU) per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
BCO1	Key enzyme in beta-carotene metabolism to vitamin A. It catalyzes the cleavage of beta-carotene into two retinal molecules, an active form of vitamin A.		T/T	Normal function. [1-2]
			A/T	Decreased beta-carotene conversion. [1] [3-7]
			C/T	Decreased beta-carotene conversion. [1] [3-8]

Recommendations:

The presence of the polymorphism in one copy (heterozygosity) has been associated with a decreased beta-carotene conversion into retinal. This means that individuals with this genetic variant may have lower levels of retinal, which could affect their overall vitamin A status. Your health care provider may suggest vitamin A supplementation. The presence of the polymorphism in one copy (heterozygosity) has been associated with decreased beta-carotene conversion into retinal. This means that individuals with this genetic variant may have lower levels of retinal, which could affect their overall vitamin A status. Your health care provider may suggest vitamin A supplementation.

References:

[1] Micheletti C et al., Nutrigenomics: SNPs correlated to vitamins metabolism. La Clinica Terapeutica (2023).

[2] Lietz G et al., Single nucleotide polymorphisms upstream from the β-carotene 15,15'-monoxygenase gene influence provitamin A conversion efficiency in female volunteers. The Journal of nutrition (2012).

[3] Gkouskou K K et al., Genotype-guided dietary supplementation in precision nutrition. Nutrition reviews (2021).

[4] Kiani A K et al., Polymorphisms, diet and nutrigenomics. Journal of preventive medicine and hygiene (2022).

[5] Leung W C et al., Two common single nucleotide polymorphisms in the gene encoding beta-carotene 15,15'-monoxygenase alter beta-carotene metabolism in female volunteers. FASEB journal (2009).

[6] Cai X et al., Carotenoid metabolic (BCO1) polymorphisms and personal behaviors modify the risk of coronary atherosclerosis: a nested case-control study in Han Chinese with dyslipidaemia (2013-2016). Asia Pacific journal of clinical nutrition (2019).

[7] Moran N E et al., Single Nucleotide Polymorphisms in β-Carotene Oxygenase 1 are Associated with Plasma Lycopene Responses to a Tomato-Soy Juice Intervention in Men with Prostate Cancer. The Journal of nutrition (2019).

[8] Borel P et al., Genetic variants in BCMO1 and CD36 are associated with plasma lutein concentrations and macular pigment optical density in humans. Annals of medicine (2011).

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Vitamin B12

Vitamin B12 is a water-soluble vitamin belonging to the B-complex group. It is crucial for organism development, formation of healthy red blood cells, and DNA and myelin synthesis.

Vitamin B12 is found in a wide range of foods of animal origin, such as meat, fish, eggs, milk and its derivatives.

The Recommended Daily Intake of vitamin B12 for adults is B12 is 2.4 mcg per day, while for pregnant and lactating women it is 2.8 mcg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
FUT2	Enzyme modifying glycoproteins and glycolipids (components of the cell membrane) which are involved in the absorption and utilization of vitamin B12.		G/G	Lower vitamin B12 levels. [1][10]
			A/A	Normal function. [1][9]
CUBN	Endocytic receptor which plays a role in vitamins metabolism by facilitating their uptake.		A/G	Somewhat lower vitamin B12 levels. [1][10-11]
MTRR	Enzyme involved in the regulation of a critical pathway for the metabolism of the amino acid methionine by providing electrons to regenerate the cofactor, vitamin B12.		A/G	Partial decrease in enzyme activity with potential negative impact on vitamin B12 concentration. [1][10][12]

Recommendations:

The FUT2 gene encodes the enzyme Fucosyltransferase 2, which plays a role in the modification of certain molecules, including those related to the absorption and utilization of vitamin B12. The polymorphism in two copies (homozygosity) has been associated with lower vitamin B12 levels in the blood. Your health care provider may suggest vitamin B12 supplementation. The CUBN encodes for the receptor protein Cubilin, which is found on the surface of the cells lining the ileum, a part of the small intestine, and it is involved in the process of capturing and transporting vitamin B12 into the body. The polymorphism in one copy (heterozygosity) has been associated with a somewhat lower vitamin B12 levels in the blood. Your health care provider may suggest vitamin B12 supplementation. The MTRR encodes for the enzyme Methionine Synthase Reductase. is involved in recycling and maintaining the active form of vitamin B12 within the cell. This is important for the ongoing methionine synthesis process and for preventing the buildup of homocysteine, which can be harmful to health. The polymorphism in one copy (heterozygosity) has been associated with a partial decrease in the activity of the enzyme and possible decrease in vitamin B12 levels. Your health care provider may suggest vitamin B12 supplementation.

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References:

[1] Micheletti C et al., Nutrigenomics: SNPs correlated to vitamins metabolism. La Clinica Terapeutica (2023).

[9] Guest N S et al., Sport Nutrigenomics: Personalized Nutrition for Athletic Performance. Frontiers in nutrition (2019).

[10] Niforou A et al., Genetic Variants Shaping Inter-individual Differences in Response to Dietary Intakes-A Narrative Review of the Case of Vitamins. Frontiers in nutrition (2020).

[11] Zhang T P et al., Clinical relevance of vitamin B12 level and vitamin B12 metabolic gene variation in pulmonary tuberculosis.” Frontiers in immunology (2022).

[12] Surendran S et al., An update on vitamin B12-related gene polymorphisms and B12 status. Genes & nutrition (2018).

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Vitamin B6

Vitamin B6 is a water-soluble vitamin belonging to the B-complex group. As primary function, vitamin B6 acts as a coenzyme supporting various enzymes primarily involved in amino acid metabolism.

Vitamin B6 is widely distributed in foods, but it is found especially in meat, fish, lightly refined grains, legumes, and nuts.

The Recommended Daily Intake of vitamin B6 for adults is 1.3 mcg per day, but in pregnant and breastfeeding women it is increased to 2.0 mcg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
ALPL	Enzyme metabolizing various phosphate compounds and playing a key role in skeletal mineralization and adaptive thermogenesis.		C/T	Slightly lower vitamin B6. [1] [4][13]
CBS	Enzyme involved in cysteine metabolism and in detoxification reactions.		A/A	Normal function. [1] [14]
			A/A	Normal function. [1] [14]

Recommendations:

The ALPL gene encodes the enzyme Alkaline Phosphatase, which is responsible for removing phosphate groups from a wide range of molecules, and it is the major enzyme involved in the clearance of vitamin B6. The presence of the polymorphism in one copy (heterozygosity) has been associated with slightly decreased levels of vitamin B6, probably due to increased excretion. Your health care provider may suggest vitamin B6 supplementation.

References:

[1] Micheletti C et al., Nutrigenomics: SNPs correlated to vitamins metabolism. La Clinica Terapeutica (2023).

[4] Kiani A K et al., Polymorphisms, diet and nutrigenomics. Journal of preventive medicine and hygiene (2022).

[13] Tanaka T et al., Genome-wide association study of vitamin B6, vitamin B12, folate, and homocysteine blood concentrations. American journal of human genetics (2009).

[14] https://www.ncbi.nlm.nih.gov/clinvar/RCV000379069.1/

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Vitamin B9

Vitamin B9, also known as folate or folic acid, is part of the B vitamins and is particularly important during periods of frequent cell division and growth, such as fetal development, infant growth, and pregnancy. In fact, it is essential for the synthesis and modification of DNA and RNA. Moreover, it is crucial for red blood cells formation.

Vitamin B9 is contained in liver, green leafy vegetables, milk, fruits, and cereals.

The Recommended Daily Intake of vitamin B9 for adults is 400 mcg DFE per day, but while for pregnant and lactating women it is 600 mcg DFE per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
MTHFR	Enzyme involved in the conversion of vitamin B9 into its biologically active form.		G/T	Somewhat decreased enzyme function. [1] [9]
			A/G	Enzyme function decreased. [1][9]

Recommendations:

The MTHFR gene encodes the enzyme Methylenetetrahydrofolate reductase, which is responsible for converting folate in its biologically active form. This active form is essential for various biochemical reactions, including the metabolism of homocysteine. The polymorphism in one copy (heterozygosity) has been associated with somewhat reduced enzyme functioning. As a result, individuals with this genetic variant may have higher homocysteine levels in their blood. Moreover, this polymorphism has crucial importance during pregnancy and breastfeeding. Your health care provider may suggest vitamin B9 supplementation. This active form is essential for various biochemical reactions, including the metabolism of homocysteine. The polymorphism in one copy (heterozygosity) has been associated with a reduction of the enzyme functioning. As a result, individuals with this genetic variant may have higher homocysteine levels in their blood. Moreover, this polymorphism has crucial importance during pregnancy and breastfeeding. Your health care provider may suggest vitamin B9 supplementation.

References:

[1] Micheletti C et al., Nutrigenomics: SNPs correlated to vitamins metabolism. La Clinica Terapeutica (2023).

[9] Guest N S et al., Sport Nutrigenomics: Personalized Nutrition for Athletic Performance. Frontiers in nutrition (2019).

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Vitamin C

Vitamin C (also known as ascorbic acid) is involved in metabolism and electron transfer, and it is an essential source of physiological antioxidant involved in the regeneration of other antioxidants inside the body. Vitamin C also functions as a cofactor and antioxidant and assists non-heme iron supply through the intestine. Genetics play a role in how vitamin C is absorbed, transported, and used by the body.

Foods rich in Vitamin C are citrus fruits, tomatoes, potatoes, red and green peppers, kiwifruit, broccoli, strawberries, Brussels sprouts, and cantaloupe.

The Recommended Daily Intake of vitamin C for adults is 90 mg per day for men, while for pregnant and lactating women it is 120 mg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
SLC23A2	Sodium/ascorbate cotransporter. Mediates electrogenic uptake of vitamin C.		T/T	Higher vitamin C in plasma. [1][10][18]
SLC23A1	Sodium/ascorbate cotransporter. Mediates electrogenic uptake of vitamin C.		C/C	Normal function. [1][10][15-17]

Recommendations:

The gene SLC23A2 encodes the sodium-dependent vitamin C transporter 1, which is responsible for transporting vitamin C (ascorbic acid) into cells. The polymorphism in two copies (homozygosity) has been correlated with higher concentrations of vitamin C in plasma.

References:

[1] Micheletti C et al., Nutrigenomics: SNPs correlated to vitamins metabolism. La Clinica Terapeutica (2023).

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[15] Kobylecki C J et al., Genetically high plasma vitamin C, intake of fruit and vegetables, and risk of ischemic heart disease and all-cause mortality: a Mendelian randomization study. The American journal of clinical nutrition (2015).

[16] Timpson N J et al., Genetic variation at the SLC23A1 locus is associated with circulating concentrations of L-ascorbic acid (vitamin C): evidence from 5 independent studies with >15,000 participants. The American journal of clinical nutrition (2010).

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Vitamin D

Vitamin D serves various important functions in the body, being crucial for bone health, immune function, muscle function, and cell growth and differentiation. Vitamin D is a fat-soluble vitamin stored in the liver, therefore it is not necessary to take it regularly through food, since the body releases it in small doses when its use becomes necessary.

Vitamin D comes in two forms: ergocalciferol, which is taken in through food (e.g., fatty fish, cod liver oil, fortified dairy products or plant-based milk, eggs, and beef liver), and cholecalciferol, which is synthesized by our bodies.

The Recommended Daily Intake of vitamin D for adults is 800 IU (20 mcg), while for pregnant and lactating women it is 600 IU (15 mcg) per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
CYP2R1	Enzyme converting vitamin D into the active ligand for the vitamin D receptor.		G/G	Normal function. [1][10][21-22]
			G/G	Lower vitamin D levels. [1][9][23-24]
GC	Protein binding vitamin D and its plasma metabolites to transport them to target tissues.		A/C	Lower vitamin D levels. [1][9-10]
			G/T	Somewhat lower vitamin D levels. [1][9-10]
VDR	Receptor allowing the body to respond to vitamin D.	–	A/G	Normal function. [1][24-28]

Recommendations:

CYP2R1 performs the first modification, producing 25-hydroxyvitamin D. The polymorphism in two copies (homozygosity) has been associated with a possible lower vitamin D levels. Your health care provider may suggest vitamin D supplementation. The gene GC encodes the vitamin D-binding protein, which is responsible for binding and transporting vitamin D and its metabolites in the bloodstream. The polymorphism in two copies (homozygosity) is associated with lower levels of vitamin D in the body. Your health care provider may suggest vitamin D supplementation. The polymorphism in one copy (heterozygosity) is associated with somewhat lower levels of vitamin D-binding protein, which may result in reduced availability and transport of vitamin D in the body. Your health care provider may suggest vitamin D supplementation.

References:

[1] Micheletti C et al., Nutrigenomics: SNPs correlated to vitamins metabolism. La Clinica Terapeutica (2023).

[9] Guest N S et al., Sport Nutrigenomics: Personalized Nutrition for Athletic Performance. Frontiers in nutrition (2019).

[10] Niforou A et al., Genetic Variants Shaping Inter-individual Differences in Response to Dietary Intakes-A Narrative Review of the Case of Vitamins. Frontiers in nutrition (2020).

[21] Ganz A B et al., Vitamin D binding protein rs7041 genotype alters vitamin D metabolism in pregnant women. FASEB journal (2018).

[22] Liu D Y et al., SNP rs12794714 of CYP2R1 is associated with serum vitamin D levels and recurrent spontaneous abortion (RSA): a case-control study. Archives of gynecology and obstetrics (2021).

[23] Wang T J et al., Common genetic determinants of vitamin D insufficiency: a genome-wide association study. Lancet (2010).

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Vitamin E

Vitamin E (or tocopherol) is a fat-soluble antioxidant that protects cell membranes from reactive oxygen species. Vitamin E is essential for correct growth and development, and efficient nervous and immune systems.

Vitamin E is widely found in oily fruits and plant-based oils, wheat seeds, cereals, nuts, and green leafy vegetables.

The Recommended Daily Intake of vitamin E for adults is 22.4 IU (15 mg) per day, while for pregnant and lactating women it is 28,4 IU (19 mg) per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
CYP4F2	Enzyme involved in the metabolism of fatty acids and xenobiotics.		C/C	Normal function. [1] [10]
SCARB1	Receptor facilitating the selective uptake of cholesterol from High-Density Lipoprotein (HDL) in the liver.		G/G	Normal function. [1] [10][29]

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Vitamin K

Vitamin K is a fat-soluble vitamin which ensures the proper functionality of specific proteins involved in calcium binding in bones and other tissues. It has also a crucial role in blood clotting (which avoid excessive bleeding) being the cofactors of enzyme involved in this process.

Vitamin K come in two forms: vitamin K1 (or phylloquinone) is widely distributed in plant-based foods, particularly leafy greens vegetable, while vitamin K2 (or menaquinone) is produced in the gut by specific bacteria and found in meat, cheese and fermented foods.

The Recommended Daily Intake of vitamin K for adults is 120 mcg per day, while for pregnant and lactating women it is 90 mcg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
VKORC1	Protein involved in vitamin K metabolism. It recycles vitamin K epoxide back to its active form.	.	C/T	Decreased protein activity. [1][30-33]

Recommendations:

The gene VKORC1 encodes the vitamin K Epoxide Reductase Complex Subunit 1, which is responsible for the recycling of vitamin K epoxide back to its active form. This is essential for the activation of vitamin K-dependent clotting factors in the blood clotting process. The polymorphism in one copy (heterozygosity) has been associated to decreased protein activity. Your health care provider may suggest vitamin K supplementation.

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Choline

Choline (sometimes referred to as vitamin J) is a component of phospholipids, that make up the cell membrane, and the neurotransmitter acetylcholine, which is involved in numerous physiological processes, including muscle movement, autonomic nervous system functions, learning, memory, and attention. Moreover, choline is essential for muscle and liver health.

The main dietary sources of choline are egg yolks, meat, seafood, dairy products, legumes, nuts, and seeds. Anyway, choline is produced in low quantity by the body.

The Recommended Daily Intake of choline for adults is 550 mg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
PEMT	Enzyme playing a crucial role in the biosynthesis of phosphatidylcholine, a critical component for membrane structure.		T/T	Decreased enzyme activity. [1][34-38]

Recommendations:

The gene PEMT encodes the Phosphatidylethanolamine N-Methyltransferase, an enzyme involved in the synthesis of phosphatidylcholine, which is an important component of cell membrane, particularly in liver, lungs and brain. The polymorphism in two copies (homozygosity) has been associated with a decreased enzyme activity.

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Calcium

Calcium is an extremely important mineral for our body, essential for the good health of bones and teeth, muscle function and nerve transmission.

Foods rich in calcium include dairy products, leafy green vegetables, almonds, fortified plant-based milk, salmon and sardines.

The Recommended Daily Intake of calcium for adults is 1,300 mg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
COL1A1	Main component of type I collagen, the fibrillar collagen found in most connective tissues, including bones, tendons, cartilage, and skin.		C/C	Normal function. [39-42]
ESR1	Receptor and transcription factor that binds to estrogen hormones and mediates their effect.		T/T	Lower Bone Mineral Density. [39] [43]

Recommendations:

The gene ESR1 encodes forEstrogen Receptor Alpha, a nuclear receptor that binds estrogen and mediates its effects in the cell. Estrogen is also known to have protective effects on bone density, by promoting bone formation and inhibiting bone resorption. The polymorphism in two copies (homozygosity) has been associated to a reduced bone mineral density, especially in postmenopausal women. Your health care provider may suggest calcium supplementation.

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Iron

Iron is one of the most abundant minerals in the body. It is a key component of hemoglobin and myoglobin, participates in the activity of many enzymes, and the body needs it to produce some hormones and connective tissue. When the body absorbs more iron than it needs for immediate use, excess iron is stored as ferritin in the cells, particularly in the liver, spleen, and bone marrow. Both iron deficiency and excess can result in health risk.

The foods richest in iron are liver, meat and fish, legumes, cereals, nuts, and dark green leafy vegetables.

The Recommended Daily Intake of iron for adults is 18 mg per day, while for pregnant and lactating women it is 27 mg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
SLC17A1	Transport protein for sodium-dependent phosphate intake playing a crucial role in neurotransmission.		C/C	Normal function. [39][44]
HFE	Protein involved in the regulation of iron homeostasis in the body by controlling iron absorption from the diet and the maintenance of iron levels in the bloodstream.		G/G	Normal function. [9] [39]
TF	Transferrin, main iron transport protein in blood.		A/G	Higher ferritin. [39] [195-196]
TMPRSS6	Protein playing a critical role in the regulation of iron homeostasis in the body.		G/A	Lower ferritin levels. [39] [44]
TFR2	Transferrin receptor, involved in iron absorption.		A/A	Normal function. [39][44-46]
BTBD9	Protein implicated in various cellular processes and involved in neuronal signaling and synaptic function.		A/G	Higher ferritin. [39] [45]

Recommendations:

The gene TF encodes transferrin, the main iron transport protein in blood. It binds to iron and facilitates its transport from the sites of absorption or storage to the areas where it is needed. The polymorphism in one copy (heterozygosity) has been associated to higher ferritin levels. The gene TMPRSS6 encodes the Transmembrane protease serine 6 or Matriptase-2, a protein playing a crucial role in iron regulation, specifically in the control of

hepcidin, a liver-derived hormone that plays a central role in controlling iron levels in the body. The polymorphism in one copy (heterozygosity) has been associated with lower ferritin levels. Your health care provider may suggest iron supplementation. The gene BTBD9 encodes the BTB (Broad-Complex, Tramtrack, and Bric-a-Brac) domain-containing protein 9 (BTBD9), a protein implicated in various cellular processes and involved in neuronal signaling and synaptic function. The polymorphism in one copy (heterozygosity) has been associated with higher ferritin levels.

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Magnesium

Magnesium is an essential element in the body involved in several processes, such as DNA and RNA synthesis, protein synthesis, and glucose metabolism. Moreover, it is critical for skeletal composition, synaptic transmission, muscle function and heart function, and for an efficient immune system.

Magnesium-rich foods include legumes, nuts, cocoa, whole grains, some spices, sweet fruits, and green leafy vegetables.

The Recommended Daily Intake of magnesium for adults is 420 mg per day, while for pregnant and lactating women it is 400 mg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
TRPM6	Ion receptor protein with crucial role in maintaining the magnesium homeostasis.		T/T	Normal function. [39] [47-49]
			C/C	Normal function. [39] [47-49]
CNNM2	Protein involved in magnesium transport and metabolism.		T/T	Normal function. [39] [50-52]

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Selenium

Selenium is a very important mineral for the overall well-being of the body as it helps in performing many basic functions, from reproduction to fighting infections, and it has antioxidant properties. It is also crucial for proper thyroid, muscle, and reproductive system functioning. Finally, it is essential for bones, hairs, and nails health.

The foods richest in selenium are fish, shellfish, red meat, poultry, dairy products, and cereals.

The Recommended Daily Intake of selenium is 55 mcg per day, while for pregnant and lactating women it is 70 mcg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
SELENOF	Protein that plays a crucial role in the transport and metabolism of selenium.		C/T	Lower serum selenium levels. [39][53]
SELENOP	Protein that plays a crucial role in the transport and metabolism of selenium.		C/C	Normal function. [39][53-54]

Recommendations:

The gene SELENOP encodes for a selenoprotein, a protein responsible for delivering selenium to different tissues and organs, ensuring its availability for essential functions. The polymorphism in one copy (heterozygosity) has been associated with lower serum selenium levels. Your health care provider may suggest selenium supplementation.

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Zinc

Zinc is a mineral that is part of numerous enzymatic complexes and is necessary for the proper functioning of many hormones, including insulin, growth hormone, and sex hormones.

Zinc is present in various foods: fish and meat, grains, legumes, nuts, and seeds.

The Recommended Daily Intake is 11 mg per day for men, while for pregnant and lactating women it is 13 mg per day (https://www.fda.gov/media/99069/download).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
SLC30A8	Protein playing a crucial role in the regulation of zinc homeostasis within insulin-secreting pancreatic cells.		C/C	Lower zinc level, higher glucose levels in blood. [39] [44][55]

Recommendations:

The gene SLC30A8 encodes the zinc transporter 8, a protein needed for the intake of zinc in pancreatic cells, where it is crucial for insulin production. The polymorphism
in two copies (homozygosity) has been associated with lower zinc levels, which may result also in a reduction of insulin levels and consequently an increase in blood glucose levels. Your health care provider may suggest selenium supplementation. Your health care provider may suggest a low-carbohydrate diet.

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Carbohydrates Metabolism

Carbohydrates metabolism is very important for overall health and wellbeing. Indeed, carbohydrates are ingested and absorbed as simple sugars from the intestine to the systemic circulation. Then, they arrive at organs such as the brain and muscles, where they are used or stored as energy sources. These processes are finely tuned by insulin, and hormone secreted by pancreas. Thus, carbohydrate metabolism and insulin levels can highly influence blood glucose levels, which in turn is crucial in human health.

The main sources of carbohydrates are grains, fruits, vegetables, legumes, dairies, sugar, and sweets.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
AMY1A	Protein involved in the first steps of digestion of carbohydrates in saliva.		G/G	Normal function. [56] [61]
ADIPOQ	Hormone playing a role in glucose metabolism.		C/C	Normal function. [36] [56]
UCP2	Protein present in the mitochondria and involved in energy equilibrium.		C/T	Possible high BMI. [56][62-66]
LEP	Hormone produced by adipose tissue and involved in the regulation of energy balance and body weight.		G/G	Normal function. [36] [56]
PYGM	Enzyme involved in glycogen metabolism, a macromolecule that serves as storage for glucose.		A/A	Normal function. [56] [197-198][201-202]
			G/G	Normal function. [56] [197-200]
UCP3	Protein present in the mitochondria and involved in energy equilibrium.		G/G	Normal function. [56] [67]
PPARG	Receptor that regulates fatty acid deposition and glucose metabolism.		C/C	Normal function. [56] [68-69]
KCNJ11	It plays a critical role in glucose-induced insulin secretion in pancreatic cells.		C/T	Somewhat impaired glucose-induced insulin secretion with high BMI. [56][59-60]

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Gene	Gene Function	SNP	Alleles	Outcome
LEPR	It binds leptin and, in concert with it, regulates energy metabolism and body weight.		A/A	Possible high BMI. [56-58]

Recommendations:

The UCP2 gene encodes the Uncoupling Protein 2, which is primarily expressed in pancreatic beta cells, where it plays a role in regulating glucose homeostasis. It influences the balance between glucose utilization and fat metabolism. The polymorphism in one copy (heterozygosity) was associated with a possible high Body Mass Index (BMI). Your health care provider may suggest a a personalized diet. The KCNJ11 gene encodes the Potassium Voltage-Gated Channel Subfamily J Member 11, which is primarily expressed in pancreatic beta cells, which are responsible for producing and secreting insulin. This protein plays a vital role in regulating insulin secretion in response to changes in blood glucose levels. The polymorphism in one copy (heterozygosity) was associated with a somewhat impaired glucose-induced insulin secretion in presence of an high Body Mass Index (BMI). Your health care provider may suggest a low-carbohydrate diet. The LEPR gene encodes the Leptin Receptor, which is primarily found in the hypothalamus of the brain. When leptin binds to its receptor, it sends signals to the brain to regulate appetite and energy expenditure, controlling the intake and utilization of carbohydrates and other nutrients. The polymorphism in two copies (homozygosity) has been associated with a possible high Body Mass Index (BMI). Your health care provider may suggest a personalized diet.

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Lipids Metabolism

Lipids are the energy reserves of animals and perform various functions, such as maintenance of body temperature, whilst being the key constituents of cell membranes and serving as chemical messengers. The human body requires various types of useful lipid fat to maintain the healthy functions of its parts. Balancing lipid levels in the blood is an important part of staying healthy. Augmented lipids easily deposit to the walls of blood vessels, and the growing fatty scale causes a health risk.

The main sources of lipids are oils, nuts and seeds, fatty fish, poultry and meat, eggs, dairy product, and avocado.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
APOC3	Component of lipoproteins, present in the blood and playing a crucial role in lipid transport in the body.		C/C	Normal function. [4] [56][78]
CPT2	Enzyme involved in the transport of fatty acids into mitochondria, where they undergo beta-oxidation to produce energy.		G/A	Enzyme deficiency. [93][171]
			A/A	Possible low response to insulin. [93][171]
FTO	Protein involved in the control of body weight and energy metabolism.		A/A	Possible high BMI; better response to high-protein diets. [9] [56][70-71]
TFAP2B	Transcription factor regulating genes that control cell growth, differentiation, apoptosis (programmed cell death).		G/G	Possible high BMI. [56][80-81]
			A/A	Better response to high-protein diets for weight management. [56][80-81]
PCSK9	Enzyme playing a critical role in the regulation of cholesterol levels in the bloodstream.		G/G	Normal function. [56] [82-83]
			C/C	Normal function. [56] [84]
			A/A	Normal function. [56] [85-87]

Gene	Gene Function	SNP	Alleles	Outcome
LPL	Enzyme playing a crucial role in the breakdown of triglycerides present in circulating lipoproteins.		C/C	Normal function. [56] [88-89]
			A/A	Normal function. [56] [90]
ELOVL2	Protein involved in the synthesis of very long polyunsaturated fatty acids (VLC-PUFAs), which have several critical roles in our body.		T/T	Normal function. [56] [92]
UCP1	Protein playing a significant role in thermogenesis, a process by which the body generates heat in response to environmental changes in temperature or diet.		T/T	Normal function. [56] [91]
			C/T	Possible high BMI. [56][91]
APOA2	Component of lipoproteins, present in the blood and playing a crucial role in lipid transport in the body.		A/G	Normal function. [4] [56][72-73]
APOA5	Component of lipoproteins, present in the blood and playing a crucial role in lipid transport in the body.		A/A	Normal function. [4] [56][74-77]
FADS1	Enzyme involved in the desaturation of polyunsaturated fats.		T/C	Decreased enzyme activity. [36][56]
LIPC	Enzyme breaking down triglycerides and phospholipids present in high-density lipoproteins (HDL).		G/A	Significantly higher levels of fasting plasma glucose, total cholesterol, triglycerides. [56] [79-80]

Recommendations:

The CPT2 gene encodes the Carnitine palmitoyltransferase II, an enzyme that plays a crucial role in fatty acid metabolism, particularly in the breakdown of long-chain fatty acids, being essential for transporting long-chain fatty acids into the mitochondria, where they undergo beta-oxidation to produce energy. The polymorphism in one copy (heterozygosity) has been associated with enzyme deficiency, which may result in reduced ability to use fats as an energy source, and muscle weakness and fatigue. Your health care provider may suggest a low-fat diet. The polymorphism in two copies (homozygosity) has been associated with possible low response to insulin. Your health care provider may suggest a low-carbohydrates and low-fat diet. The gene FTO encodes the fat mass and obesity-associated protein, which is known to be involved in the control of body

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weight and energy metabolism. The polymorphism in two copies (homozygosity) has been associated with a higher Body Mass Index (BMI). Moreover, this polymorphism has been associated with a higher response to high-protein diets for weight loss. Your health care provider may suggest a low-fat diet and a high-protein diet. The gene TFAP2B encodes the transcription factor AP-2 beta, which is a transcription factor regulating genes that control cell growth, differentiation, and apoptosis. Particularly, it influences the development and function of adipocytes and may have implications for metabolic processes related to high BMI and energy balance. The polymorphism in two copies (homozygosity) has been associated with possible high BMI. Your health care provider may suggest a personalized diet. Particularly, it influences the development and function of adipocytes and may have implications for metabolic processes related to high BMI and energy balance. The polymorphism in two copies (homozygosity) has been associated with higher response to high-protein diets in weight loss. Your health care provider may suggest a low-fat diet and a high-protein diet. In fact, BAT is specialized for burning stored lipids to generate heat. In this contest, the UCP1 protein acts by dissipating energy as heat, instead of using it for the production of ATP (the molecule that stores and transfers energy within cells). The polymorphism in one copy (heterozygosity) has been associated with possible high Body Mass Index (BMI). Your health care provider may suggest a low-fat diet. The FADS1 gene encodes the Fatty Acid Desaturase 1, an enzyme involved in the desaturation of essential fatty acids, particularly omega-3 and omega-6 fatty acids, influencing the composition of lipids and the balance of different types of fatty acids in the body. The polymorphism in one copy (heterozygosity) was associated with a decrease in enzyme activity with a negative effect in lipids balance. Your health care provider may suggest a low-fat diet. The LIPC gene encodes Hepatic Lipase, an enzyme that is primarily found in the liver and plays a crucial role in lipid metabolism, being involved in the breakdown of triglycerides and phospholipids in lipoproteins, including high-density lipoproteins (HDL) and intermediate-density lipoproteins (IDL). The polymorphism in one copy (heterozygosity) has been associated with significantly higher levels of fasting plasma glucose, total cholesterol, triglycerides. Your health care provider may suggest a low-fat diet.

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Food preferences

Food allergies occur when the body's immune system reacts to certain proteins in food. Food allergic reactions vary in severity from mild symptoms, involving hives and lip swelling, to severe, life-threatening symptoms, often called anaphylaxis, that may involve fatal respiratory problems and shock.

Food sensitivities and intolerances are more common than food allergies and they are not related to the response of the immune system. In this case, a food triggers an adverse reaction in your body since you are totally or partially unable to digest or metabolizing it. Food sensitivities and intolerances can manifest in many ways, as they can involve different systems and organs. Common symptoms include gastrointestinal issues, headaches, migraines, skin problems, fatigue, joint pain, and mood changes.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
MCM6	Protein part of the Minichromosome Maintenance (MCM) complex, which is involved in the regulation of DNA replication.		T/T	Lower production of lactase in adulthood. [93][95]
ALDH2	Enzyme required for clearance of cellular acetaldehyde, a toxic byproduct of alcohol metabolism, and formaldehyde, a toxic byproduct of some metabolic process and environmental pollutant.		G/G	Normal function. [93] [98][100-103]
HLA-DQB1	Part of a cell surface protein playing a crucial role in the immune system, by presenting antigens to helper T cells.		C/T	Possible peanut sensitivity in Caucasians. [93] [116-117]
LCT	Enzyme which breaks down lactose, the main sugar in mammalian milk.		A/A	Production of lactase also in adulthood. [93-95]
IL-18	Signaling protein playing a key role in the immune system and part of the interleukin family of cytokines. It is involved in epithelial barrier repair and immune responses.		C/C	Normal function. [93] [126-127]
HNMT	Enzyme responsible of degrading histamine and in regulating the airway response to histamine.		C/C	Normal function. [93] [109-112]

Gene	Gene Function	SNP	Alleles	Outcome
FLG	Essential structural protein found in the outermost layer of the skin, called the stratum corneum. It plays a crucial role in maintaining the skin's barrier function and hydration.		G/G	Normal function. [93] [104-108]
HLA-DQA1	Part of a cell surface protein playing a crucial role in the immune system, by presenting antigens to helper T cells.		C/T	Normal function. [93] [113-115]
			C/T	Possible gluten sensitivity. [93][113]
ADH1B	Enzyme metabolizing alcohol (ethanol) in the liver and producing acetaldehyde.		G/G	Normal function. [4] [93][96-99]
IL-13	Signaling protein playing a key role in the immune system and part of the interleukin family of cytokines. It is involved in regulating various immune responses, particularly those related to allergic and inflammatory reactions.		C/T	Increase IgE levels; typical possibility of shrimp sensitivity. [93][118-124]
			C/T	Higher possibility of food sensitivities; elevated plasma IgE. [93][118][120][125]
			G/A	Higher IgE levels; higher possibility of sensitivities; higher possibility of dust mite and shrimp sensitivity. [93] [118-123]
IL-4	Signaling protein playing a key role in the immune system and part of the interleukin family of cytokines. It is involved in regulating antibody production, hematopoiesis and inflammation, and immune responses.		C/C	Higher possibility of food sensitivities in conjunction with lower vitamin D levels (most common genotype in Caucasians). [93] [128-130]

Recommendations:

The MCM6 gene encodes the Minichromosome Maintenance Complex Component 6, a protein involved in the regulation of DNA replication and playing a role in the initiation of DNA synthesis. In the context of lactose tolerance, variations in regulatory regions near the MCM6 gene have been associated with the persistence or non-persistence of lactase expression into adulthood. The polymorphism in two copies (homozygosity) has been associated with a lower production of lactase in adulthood, leading to difficulty digesting lactose. Your health care provider may suggest to reduce intake of foods

containing lactose. The HLA-DQA1 gene encodes the alpha chain of the Human Leukocyte Antigen-DQ protein. This protein is a cell surface receptor and a major histocompatibility complex (MHC) class II protein, playing a crucial role in the immune system by presenting antigens to T cells, which are important for initiating immune responses. The polymorphism in one copy (heterozygosity) has been associated with an increase of the relative risk of peanut sensitivity in Caucasians. Your health care provider may suggest to reduce intake of foods containing peanut. This protein is a cell surface receptor and a major histocompatibility complex (MHC) class II protein, playing a crucial role in the immune system by presenting antigens to T cells, which are important for initiating immune responses. The polymorphism in one copy (heterozygosity) has been associated with possible gluten intolerance, a condition characterized by symptoms related to the consumption of gluten, a protein found in wheat, barley, rye, and their derivatives. Your health care provider may suggest to reduce intake of foods containing gluten. The IL13 gene encodes for interleukin-13 (IL-13), which is a cytokine involved in the immune system's response. Interleukins are signaling molecules that play a key role in communication between cells of the immune system. The polymorphism in one copy (heterozygosity) has been associated with higher levels of immunoglobulin E (a class of antibodies that plays a central role in allergic reactions), but with typical possibility of shrimp sensitivity. Your health care provider may suggest to reduce intake of foods containing shrimp. Interleukins are signaling molecules that play a key role in communication between cells of the immune system. The polymorphism in one copy (heterozygosity) has been associated with higher levels of immunoglobulin E (a class of antibodies that plays a central role in allergic reactions) and possible food sensitivity. Interleukins are signaling molecules that play a key role in communication between cells of the immune system. The polymorphism in one copy (heterozygosity) has been associated with higher levels of immunoglobulin E (a class of antibodies that plays a central role in allergic reactions), possible sensitivities, and possible dust mite and shrimp sensitivity. Your health care provider may suggest to reduce exposure to dust mite and shrimp. The IL4 gene encodes for interleukin-4 (IL-4), which is a cytokine involved in the immune system's response. Interleukins are signaling molecules that play a key role in communication between cells of the immune system. The polymorphism in two copies (homozygosity), the most common genotype in Caucasians, has been associated with possible food sensitivities in presence of low vitamin D. Your health care provider may suggest a personalized diet and vitamin D supplementation.

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Tyramine sensitivity

Tyramine is a biogenic amine naturally found at trace levels in the human body. Symptoms related to tyramine intolerance are headaches, migraines, palpitations, fluctuations in blood pressure, sweating, and digestive disturbances. Reduced enzyme activity in just one gene is not likely to cause you a whole lot of problems with high tyramine foods, since there are multiple ways your body can break it down, but reduced activity in a couple of genes theoretically could cause problems with tyramine metabolism.

Tyramine-rich foods are typically fermented foods or foods close to spoiling. These include aged cheeses, cured meats, fermented products like sauerkraut and soy sauce, certain alcoholic beverages, and certain types of fruits (e.g., bananas, avocados, and figs).

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
CYP2D6	Enzyme member of the cytochrome P450 superfamily. It catalyzes many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids.		CA/CA	Normal function. [93][139][141]
			G/G	Normal function. [93][139][142]
			C/T	Normal function. [93][139-140]
FMO3	Hepatic enzyme catalyzing the oxygenation of a wide variety of nitrogen- and sulfur-containing compounds, including drugs and dietary compounds.		G/G	Normal function. [93][135-137]
			G/G	Normal function. [93][135][138]
			CTG/ CTG	Normal function. [93][135]
MAOA	Enzyme involved in the regulation of neurotransmitters (such as serotonin, norepinephrine, and dopamine), essential for maintaining normal mood, emotions, and cognitive functions.		T/T	Decreased enzyme activity and possibly decreased tyramine metabolism. [93] [131-134]

Recommendations:

The MAOA gene encodes for monoamine oxidase A, an enzyme found in the outer membrane of mitochondria that plays a role in the metabolism and degradation of biogenic amines, such as tyramine. The polymorphism in two copies (homozygosity) has been associated with a reduction in enzyme activity, potentially leading to a decrease in tyramine metabolism and the accumulation of tyramine. Your health care provider may suggest to reduce intake of foods containing tyramine.

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Taste

Taste is one of the most prominent determinants influencing our food choices, although other characteristics come into play in this aspect (i.e., personal experiences, cultural influences, health benefits). Moreover, the perception of taste is influenced by our genetic: our genes are responsible, at least partially, for how much we experience tastes (e.g., bitter, sour, sweet, or salty) and what are our preferences.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
TAS2R38	Receptor involved in the perception of a wide range of bitter compounds.		A/G	Able to taste some bitter. [93] [143-144]
			C/T	Probably can taste bitter. [93][146]
TAS1R2	Receptor involved in the detection of chemical stimuli involved in sensory perception of sweet taste.		C/T	Lower probability of drinking wine. [93][147]

Recommendations:

The TAS1R2 gene encodes for a taste receptor known as taste receptor type 1 member 2. This receptor is part of the TAS1R family of taste receptors and is primarily associated with the perception of sweet taste. The polymorphism in one copy (heterozygosity) has been associated with a lower probability of drinking wine.

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Detoxification and Antioxidation

Detoxification is a set of processes aimed at managing acute intoxication and withdrawal, which means cleansing the blood from toxins. The body eliminates toxins through the liver, kidneys, intestines, lungs, lymphatic system, and skin during a body detox. However, when these systems are compromised, impurities aren't properly filtered, and the body is adversely affected.

Antioxidation includes several processes that aim to protect cells and tissues from oxidative damage caused by free radicals, highly reactive and unstable molecules generated as byproducts of normal cellular metabolism or introduced from external sources such as pollution, cigarette smoke, and certain foods. When this mechanism is unbalanced, a condition called oxidative stress occurs, which has been linked to aging and various health conditions.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
CYP1A2	Enzyme member of the cytochrome P450 superfamily. It catalyzes many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids.		A/A	Faster metabolism of caffeine. [9][148][154][156]
			G/G	Normal function. [9][148][154-155]
ADORA2A	Receptor protein activated by the binding of adenosine. It determines vasodilation, anti-inflammatory effect, neurotransmitter modulation, cardiovascular protection.		C/T	No uneasiness increase from caffeine (in average amount). [9][148][157-159]
AS3MT	Enzyme playing a crucial role in the metabolism of arsenic in the body.		C/G	Normal function. [148][152-153]

Recommendations:

The gene CYP1A2 encodes the cytochrome P450 1A2, an enzyme part of the cytochrome P450 superfamily, which are involved in the metabolism of many drugs and other compounds. The polymorphism in two copies (homozygosity) has been associated with a faster metabolism of caffeine, which means that it is degraded more quickly and remain less time in your organism. The gene ADORA2A encodes the adenosine A2A receptor, which binds adenosine, a neurotransmitter that acts as a central nervous system depressant, promoting relaxation. Caffeine binds to this receptor, preventing the binding of adenosine and promoting release of other neurotransmitters, such as dopamine and norepinephrine, which contribute to its stimulating effects. The polymorphism in one copy (heterozygosity) has been associated with the absence of an increase in uneasiness with the intake of moderate amounts of caffeine.

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Longevity

Longevity refers to the state or quality of having a long duration of life or existence. It is the ability to live for an extended period, often beyond the average lifespan for a given population or species. Longevity is a concept commonly associated with human beings, where it refers to living to an advanced age, typically beyond 80 years. Uncovering the secrets of human longevity and healthy aging remains a primary challenge in the fields of biology and medicine, since comprehending the interplay between lifestyle and environmental factors, and genetics is hard. However, studying the genetic behind exceptional individuals' longevity and healthy aging offers invaluable biological insights.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
FOXO3	Transcription factor regulating apoptosis. It is involved in nutrient sensing and in the response to oxidative stress.		G/T	Somewhat increased odds of living longer. [4][148] [160-162]
BPIFB4	Protein involved in host defense and immune responses.		G/G	Variant observed in long-lived individuals. Better endothelial function. Less likely to be frail in old age. [148][163-165]

Recommendations:

The FOXO3 gene encodes for the Forkhead box protein, a transcription factor playing a crucial role in regulating the expression of genes involved in various cellular processes, such as apoptosis (programmed cell death), cell cycle control, DNA repair, oxidative stress resistance, and metabolism. The polymorphism in one copy (heterozygosity) has been associated with somewhat increased odds of living longer. The gene BPIFB4 encodes the bactericidal/permeability-increasing fold-containing family B member 4, a protein involved in host defense and immune response. It is expressed in various tissues, including the respiratory tract, and has been found in mucus secretions, suggesting its potential role in protecting mucosal surfaces from microbial invasion. The polymorphism in two copies (homozygosity) has been observed with higher frequency in long-lived individuals and has been associated with a better functioning of the endothelium, the single layer of cells that lines the inner surface of blood vessels, and a a reduced likelihood of frailty in old age.

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Physical Activity

WHO defines physical activity as “any bodily movement produced by skeletal muscles that requires energy expenditure”. Then it refers to all movements performed by a person, including e.g., work, hobbies, walk or cycle to transport. Physical activity has been widely demonstrated to improve general health and well-being, with no exceptions: both moderate- and vigorous-intensity physical activity are good for you. Among other things, it allows for maintaining a healthy body weight, improves mental health, and aids in preventing noncommunicable diseases. There are various methods to stay physically active: walking, cycling, engaging in sports, participating in active recreation and play.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
PPARA	Transcription factor regulating the expression of various genes involved in lipid metabolism and energy homeostasis.		G/C	Normal function. [166] [167]
GABPB1	Transcription factor regulating various genes involved in energy metabolism, cellular respiration, and other essential cellular processes.		C/C	Normal function. [166] [169]
			C/C	Normal function. [166] [169]
			A/A	Likely better in endurance sports and better aerobic capacity. [166-168]
AMPD1	Enzyme found in the skeletal muscles and playing a crucial role for movement, producing energy.		A/G	Reduced enzyme function. May experience muscle soreness in exercise. Possible benefit on cardiovascular function. [166][174]
EPAS1	Transcription factor regulating genes involved in the formation of new blood vessels, the production of red blood cells, glucose metabolism, and cell proliferation and survival.		A/A	Variant rare in the sprint/power athletes. [166][167][170]
BDKRB2	Receptor that relaxes and widens blood vessels, leading to increased blood flow and decreased blood pressure.		C/T	Probably better endurance performance, than power performance. [166][167] [179]

Gene	Gene Function	SNP	Alleles	Outcome
VEGFA	Signaling protein involved in the regulation of blood vessel formation and blood vessel permeability.		G/G	Lower protein levels. Lower improvements in VO2max seen with aerobic training. [166] [183]
AGT	Protein crucial for maintaining blood pressure, fluid balance, and electrolyte homeostasis.		A/G	Slightly higher possibility of high blood pressure. Likely to be better in power sports. [166][178]
MSTN	Protein involved in the control of growth and development of muscle tissues.		T/T	Typical muscle mass, better jumping ability. [166][182]
CNR1	Receptor regulating various physiological processes, including pain sensation, mood, appetite, memory, and immune response.		T/T	Likely to tolerate more high-intensity training. [166][175]
IGF2	Protein member of the insulin-like growth factor (IGF) family, playing a role in promoting cell proliferation and differentiation.		C/C	Better sprint and jumping ability. [166] [184]
ACTN3	Structural protein that is expressed in fast, type II fibers, where it plays an important role in the generation of explosive and powerful muscle contractions.		T/T	Non-functioning protein. More likely to be an endurance athlete than power athlete. [166] [167]

Recommendations:

It is a transcription factor that plays a crucial role in the regulation of nuclear-encoded mitochondrial genes, thus it is essential for efficient cellular energy metabolism. The absence of the polymorphism (homozygosity) has been associated with better performances in endurance running and better aerobic capacity. Your health care provider may suggest a personalized training activity. The AMPD1 gene encodes for adenosine monophosphate deaminase 1, an enzyme that plays a role in purine metabolism. Purines are essential components of DNA, RNA, and ATP (adenosine triphosphate), which is a molecule involved in energy transfer within cells. Then, AMPD1 indirectly contributes to cellular energy metabolism since it generate intermediates that can be utilized in various metabolic pathways. The polymorphism in one copy (heterozygosity) has been associated with a reduced enzyme function, which is linked to muscle soreness during and after physical activities. Anyway, it is also linked to possible benefit in cardiovascular function. Your health care provider may suggest a personalized training activity. The EPAS1

gene encodes endothelial PAS domain protein 1, a transcription factor that plays a crucial role in the cellular response to low oxygen levels, a condition known as hypoxia. It regulates the production of erythropoietin (EPO), a hormone that stimulates the production of red blood cells. This is a crucial adaptation to hypoxia, ensuring an adequate supply of oxygen-carrying red blood cells. The absence of the polymorphism (homozygosity) has been rarely observed in sprint and power athletes, suggesting that it is unfavorable for this sport. Your health care provider may suggest a personalized training activity. The BDKRB2 gene encodes for the bradykinin B2 receptor, that plays a key role in the physiological effects of bradykinin, a peptide that acts as a potent vasodilator and is involved in various physiological processes, including blood pressure regulation, inflammation, and pain perception. The polymorphism in one copy (heterozygosity) has been associated with higher probability of having good performances in endurance sports, rather than in power sports. Your health care provider may suggest a personalized training activity. The gene VEGFA encodes the vascular endothelial growth factor A, a signaling protein involved in the regulation of blood vessel formation and blood vessel permeability. The absence of the polymorphism (homozygosity) has been associated with lower protein levels and lower improvements in VO2 max seen with aerobic training. The AGT gene encodes for angiotensinogen, a precursor protein involved in the renin-angiotensin system (RAS), which plays a crucial role in regulating blood pressure and fluid balance in the body. The polymorphism in one copy (heterozygosity) has been associated with possible high blood pressure, but also to better performances in power sports. Your health care provider may suggest personalized diet and dietary supplementation to maintain healthy blood pressure levels. Your health care provider may also suggest a personalized training activity. The gene MSTN encodes myostatin, a protein involved in the control of growth and development of muscle tissues, acting as a negative regulator of muscle mass, meaning that it limits muscle growth. The absence of the polymorphism (homozygosity) has been associated with average muscle mass, but also to better jumping ability. Your health care provider may suggest a personalized training activity. The CNR1 gene encodes for the cannabinoid receptor 1 (CB1 receptor), a receptor that is primarily expressed in the central nervous system. CB1 receptors play a key role in mediating the effects of endocannabinoids, which are lipid signaling molecules produced by the body. They influence aspects such as pain sensation, mood, appetite, memory, and immune response. The polymorphism in two copies (homozygosity) has been associated with a likely higher tolerance for high-intensity training. Your health care provider may suggest a personalized training activity. The IGF2 gene encodes a protein that is part of the insulin-like growth factor (IGF) family. IGF2 is a peptide hormone involved in the regulation of growth and development during fetal development and throughout life, since it acts as a mitogen (stimulates the proliferation of cells). The polymorphism in two copies (homozygosity) has been associated with better sprint and jumping ability. Your health care provider may suggest a personalized training activity. The gene ACTN3 encodes the actinin alpha 3, a structural protein expressed in fast, type II fibers. It is crucial for the generation of explosive and powerful muscle contractions. The polymorphism in two copies (homozygosity) has been associated with a loss of function of the enzyme and a predisposition towards endurance sports, rather than power sports. Your health care provider may suggest a personalized training activity.

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Pain Perception

Pain is a sensory and emotional experience that the body perceives when there is actual or potential tissue damage. While pain is an essential protection mechanism, the variations in pain perception among individuals make it so that for some individuals, it can become a problem, even disabling. Therefore, it is essential to recognize the individuality with which the sensation of pain manifests, which is likely to be due to a complex interplay among genitic, environmental and personal factors.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
SCN9A	Protein essential for the generation and propagation of electrical signals neurons and muscle cells.		G/G	Normal function. [166][180][185]
NTRK1	Protein essential for the development and survival of neurons, especially those that transmit information about sensations such as pain, temperature, and touch.		A/G	Somewhat increased pain perception during acupuncture. [166][180][186-187]

Recommendations:

The NTRK1 gene encodes for the TrkA receptor, which is a member of the neurotrophic tyrosine kinase receptor family. TrkA is a receptor for nerve growth factor (NGF), a neurotrophin that plays a crucial role in the development and maintenance of the nervous system, especially neurons that transmit information about sensations such as pain, temperature, and touch. The polymorphism in one copy (heterozygosity) has been associated with somewhat increased pain perception during acupuncture.

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Sleep and mood

Sleep and mood are closely connected: poor or inadequate sleep can cause irritability and stress, while healthy sleep can enhance well-being. Not only does sleep affect mood, but mood and mental states can also affect sleep. Sleep is essential to the human brain and is regulated by genetics with many features conserved across species. Sleep is also influenced by health and environmental factor: to identify replicable genetic variants contributing to sleep may require accounting for these factors.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
COMT	Enzyme playing a role in the breakdown of catecholamines, such as dopamine, epinephrine, and norepinephrine, in the brain and other tissues.		G/A	Intermediate dopamine levels. [166][193]
ADA	Enzyme that prevents the accumulation of adenosine, that can interfere with normal cellular functions.		C/C	Normal function. [166][190-191]
GSK3B	Enzyme involved in glycogen metabolism, cellular division, proliferation, motility and survival.		A/A	Normal function. [166][188-189]
NGFR	Receptor playing a crucial role in the development and maintenance of the nervous system.		C/C	Normal function. [166][192]

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Chiropractic treatment

Chiropractic is a discipline based on precise and controlled adjustments or manipulations aiming at treating mechanical disorders of the musculoskeletal system, particularly the spine. In fact, the central concept of chiropractic treatment is that proper alignment of the spine is crucial for overall health and well-being.

Your Results:

Gene	Gene Function	SNP	Alleles	Outcome
CNTF	Hormone promoting neurotransmitter synthesis and neurite outgrowth in certain neuronal populations.		G/G	Better response to chiropractic treatment. [166][180] [194]

Recommendations:

The gene CNTF encodes the ciliary neurotrophic factor, a protein that plays a crucial role in the development, maintenance, and protection of certain nerve cells in the nervous system. The polymorphism in two copies (homozygosity) a better response to the chiropractic treatment.

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Conclusions

Genetic Data Results - Summary Table:

The Red Results

Class	SNP	Alleles	Outcome
Vitamin B12		G/G	Lower vitamin B12 levels.
Vitamin D		A/C	Lower vitamin D levels.
Vitamin K		C/T	Decreased protein activity.
Choline		T/T	Decreased enzyme activity.
Calcium		T/T	Lower Bone Mineral Density.
Iron		A/G	Higher ferritin.
Iron		G/A	Lower ferritin levels.
Iron		A/G	Higher ferritin.
Selenium		C/T	Lower serum selenium levels.
Zinc		C/C	Lower zinc level, higher glucose levels in blood.
Carbohydrates		C/T	Possible high BMI.
Carbohydrates		A/A	Possible high BMI.
Lipids		G/A	Enzyme deficiency.
Lipids		A/A	Possible low response to insulin.
Lipids		G/G	Possible high BMI.
Lipids		T/C	Decreased enzyme activity.
Lipids		G/A	Significantly higher levels of fasting plasma glucose, total cholesterol, triglycerides.
Inflammation Immunity		A/G	Increase in inflammation.
Food preferences		T/T	Lower production of lactase in adulthood.
Fat Distribution		A/G	More subcutaneous adipose tissue.
Immunity Inflammation		T/C	Increased inflammation.
Cardio Function		G/G	Higher total cholesterol.

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Class	SNP	Alleles	Outcome
Diet Response		C/T	Higher risk of insulin resistance.
Hormonal Balance		A/A	Lower allopregnanolone levels.
Distribution Fat		C/C	Higher risk for sarcopenia.
Function Cardio		C/C	Higer risk for cardiovascular diseases.
Distribution Fat		G/G	Higher BMI, Fat Mass and Body Fat Percentage.
Hormonal Balance		C/A	Increase in testosterone levels.
Fat Distribution		T/T	More subcutaneous adipose tissue in men.
Tyramine sensitivity		T/T	Decreased enzyme activity and possibly decreased tyramine metabolism.
Distribution Fat		G/G	Higher BMI, weight and waist circumference.
Immunity Inflammation		A/C	Lower serum levels of HGF (lower inflammation).
Fat Distribution		C/C	Lower body fat distribution.
Distribution Fat		G/G	Increased risk for high BMI, hip circumference, and weight.
Distribution Fat		A/A	Higher Waist-Hip Ratio.
Hormonal Balance		C/A	Increase in testosterone levels.
Cardio Angiogenesis		G/C	Vascular weakening due to increased enzyme activity.
Lymph Function		C/T	Imbalance in the lymphangiogenesis process.
Immunity Inflammation		A/T	Imbalance in immune response.
Cardio Energy		T/G	Possible high blood pressure.
Distribution Fat		A/A	Higher hip circumference adjusted by BMI.
Inflammation Immunity		A/A	Possible inflammatory response.
Diet Response		A/A	Increased risk for insulin resistance.
Distribution Fat		A/A	Higher BMI, Fat Mass and Body Fat Percentage.

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Class	SNP	Alleles	Outcome
Lymph Function		C/C	Imbalance in the formation and development of lymphatic vessels.
Diet Response		T/T	Decreased risk of obesity.
Cardio Energy		T/T	Possible high blood pressure.
Diet Response		T/T	Higher risk of insulin resistance.
Distribution Fat		T/T	Higher BMI, Fat Mass and Body Fat Percentage.
Immunity Inflammation		G/A	Higher levels of Tumor Necrosis Factor-alpha, with impairment of immune and inflammatory response.
Fat Distribution		G/G	More subcutaneous adipose tissue.
Distribution Fat		C/C	Higher BMI, weight and waist circumference.
Cardio Angiogenesis		C/T	Imbalance in the process of angiogenesis and vascular remodeling.
Fat Distribution		A/A	More subcutaneous adipose tissue in women.
Food preferences		C/T	Increase IgE levels; typical possibility of shrimp sensitivity.
Fat Distribution		A/A	Lower body fat distribution.
Food preferences		C/T	Higher possibility of food sensitivities; elevated plasma IgE.
Lymph Function		A/A	Imbalance in the development and function of lymphatic vessels.
Fat Distribution		A/A	More subcutaneous adipose tissue in women.
Fat Distribution		T/C	Higher percentage of trunk fat mass in women.
Immunity Inflammation		T/C	Increase in inflammation.
Diet Response		A/G	Higher risk of insulin resistance.
Fat Distribution		T/T	More subcutaneous adipose tissue in women.
Food preferences		G/A	Higher IgE levels; higher possibility of sensitivities; higher possibility of dust mite and shrimp sensitivity.
Inflammation Immunity		C/C	Increase in inflammation.
Fat Distribution		T/T	Lower body fat distribution.

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Class	SNP	Alleles	Outcome
Cardio Energy		C/C	Lower protein activity, deficit in energy metabolism.

The Orange Results

Class	SNP	Alleles	Outcome
Vitamin A		A/T	Decreased beta-carotene conversion.
Vitamin A		C/T	Decreased beta-carotene conversion.
Vitamin B12		A/G	Somewhat lower vitamin B12 levels.
Vitamin B12		A/G	Partial decrease in enzyme activity with potential negative impact on vitamin B12 concentration.
Vitamin B6		C/T	Slightly lower vitamin B6.
Vitamin B9		G/T	Somewhat decreased enzyme function.
Vitamin B9		A/G	Enzyme function decreased.
Vitamin D		G/G	Lower vitamin D levels.
Vitamin D		G/T	Somewhat lower vitamin D levels.
Carbohydrates		C/T	Somewhat impaired glucose-induced insulin secretion with high BMI.
Lipids		A/A	Possible high BMI; better response to high-protein diets.
Lipids		C/T	Possible high BMI.
Physical activity		A/G	Reduced enzyme function. May experience muscle soreness in exercise. Possible benefit on cardiovascular function.
Physical activity		A/A	Variant rare in the sprint/power athletes.
Physical activity		G/G	Lower protein levels. Lower improvements in VO2max seen with aerobic training.
Physical activity		A/G	Slightly higher possibility of high blood pressure. Likely to be better in power sports.
Pain		A/G	Somewhat increased pain perception during acupuncture.
Food preferences		C/T	Possible peanut sensitivity in Caucasians.
Food preferences		C/T	Possible gluten sensitivity.

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Class	SNP	Alleles	Outcome
Cardio Energy		G/G	Increased catecholamine synthesis and higher blood pressure in response to stress.
Food preferences		C/C	Higher possibility of food sensitivities in conjunction with lower vitamin D levels (most common genotype in Caucasians).

The Green Results

Class	SNP	Alleles	Outcome
Vitamin C		T/T	Higher vitamin C in plasma.
Lipids		A/A	Better response to high-protein diets for weight management.
Detox Antiox		A/A	Faster metabolism of caffeine.
Detox Antiox		C/T	No uneasiness increase from caffeine (in average amount).
Longevity		G/T	Somewhat increased odds of living longer.
Longevity		G/G	Variant observed in long-lived individuals. Better endothelial function. Less likely to be frail in old age.
Physical activity		A/A	Likely better in endurance sports and better aerobic capacity.
Physical activity		T/T	Likely to tolerate more high-intensity training.
Physical activity		C/C	Better sprint and jumping ability.
Chiropractic		G/G	Better response to chiropractic treatment.
Diet Response		T/T	Reduced risk of obesity with regular physical activity.
Diet Response		A/G	Dieting more effective in obese subjects.
Inflammation Immunity		G/G	Better response to antioxidant and polyphenols in diet.
Inflammation Immunity		G/G	Better response to antioxidant and polyphenols in diet.

The Normal Result

Class	SNP	Alleles	Outcome
Physical activity		C/T	Probably better endurance performance, than power performance.

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Class	SNP	Alleles	Outcome
Physical activity		T/T	Typical muscle mass, better jumping ability.
Physical activity		T/T	Non-functioning protein. More likely to be an endurance athlete than power athlete.
Sleep Mood		G/A	Intermediate dopamine levels.
Food preferences		A/A	Production of lactase also in adulthood.

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All information regarding the DNA Wellness Test is provided in good faith. While we have made every attempt to ensure that the information contained in these tests is accurate to the best of our knowledge, we are not responsible for any errors or omissions or for the results obtained from the use of this information.

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Genetic test results can have psychological implications, so it's important to be prepared for potential emotional distress or anxiety related to learning about health risks.

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Polymorphisms (SNPs), due to a phenomenon known as pleiotropy, can be associated with multiple characteristics. For the purposes of the DNA Wellness Test, the considered polymorphisms are analyzed from the perspective of general well-being only. Similarly, the interpreted significance of these analyzed polymorphisms may vary in other contexts, potentially leading to unsought results and/or genetic discrimination. This could affect aspects like determining family relationships, potential health conditions, ethnic associations, and more. We are not responsible for any improper use of the information you provided by the DNA Wellness Test. Some polymorphisms could also be categorized as associated with disease or predisposition to disease, even though they are not analyzed in this context in this test. No responsibility is assumed in this context.

The data collection and processing system is secure, and the DNA sample is discarded 180 days after the analysis. We are not liable for any data breaches resulting from cyber-attacks or rare events beyond the control of our standard security measures. If consent has been provided, the collected data, both genetic and non-genetic, may be used solely for the purpose of improving our tests and conducting scientific research approved by the ethics committee. The information may be shared, in an anonymous and aggregated form, exclusively through publications in scientific journals or books, communications in medical courses/congresses, and theses as part of university and post-graduate training courses.

The questionnaire results are based on the data you provided and have been evaluated according to published guidelines. The questionnaire results are based on the data you provided and have been processed by algorithms developed by MAGISNAT OMICS LLC. The evaluation is then conducted according to published guidelines.

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